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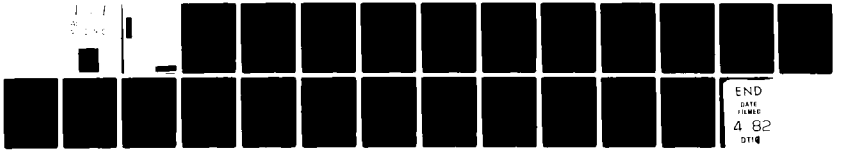

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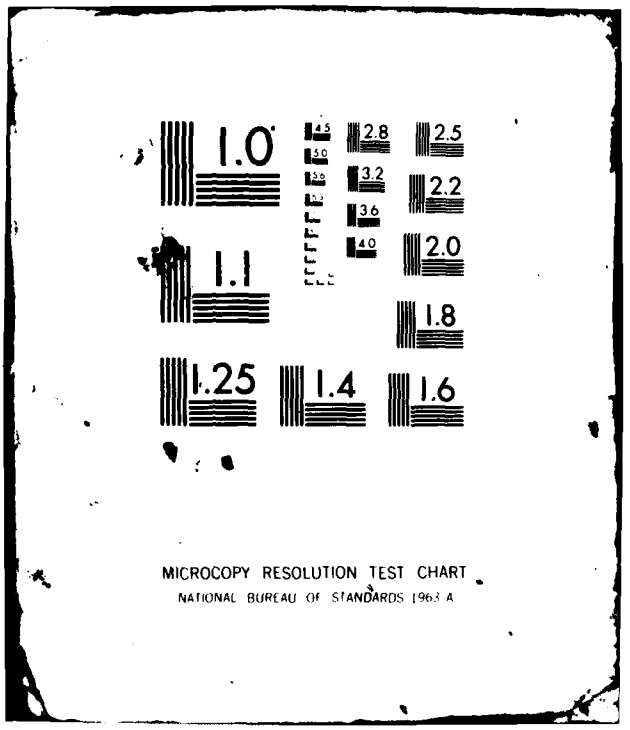
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A CANONICAL CORRELATIONAL ANALYSIS OF THE RELATIONSHIP BETWEEN OBSERVED LEADER BEHAVIORS AND ORGANIZATIONAL REWARDS

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A canonical correlation analysis was conducted to examine the relationship between 3 organizational reward criterion variables and 12 leadership behavior categories using the newly developing Leadership Observation System of measurement. Managers (N=49) from a large financial institution served as subjects in the study. One canonical root was extracted for interpretation which inversely related the behaviors of exchanging routine information & socializing/politicking with salary & promotion rewards. Implications of results for the study of leadership are discussed.

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A CANONICAL CORRELATIONAL ANALYSIS OF THE RELATIONSHIP BETWEEN OBSERVED LEADER BEHAVIOR AND ORGANIZATIONAL REWARDS

Abstract

A canonical correlation analysis was conducted to examine the relationship between three organizational reward criterion variables and twelve leadership behavior categories using the newly developing Leadership Observation System of measurement. Managers (N = 49) from a large financial institution served as subjects in the study. One canonical root was extracted for interpretation which inversely related the behaviors of exchanging routine information and socializing/politicking with salary and promotion rewards. Implications of the results for the study of leadership are discussed and it is concluded that further investigation of the relationship between leadership behaviors and organizational rewards is warranted.

A CANONICAL CORRELATIONAL ANALYSIS OF THE RELATIONSHIP BETWEEN OBSERVED LEADER BEHAVIORS AND ORGANIZATIONAL REWARDS

Leadership has been the subject of considerable research activity and scholarly debate for over three decades. Traditionally, these efforts have sought to discover the impact that leader behavior has on subordinate performance and satisfaction (Bass, 1981; Fleishman, 1973; Yukl, 1981). However, in the past several years, the traditional approaches have been subjected to increased scrutiny and criticism (e.g., see: Hunt & Larson, 1979; Hunt, Sekaran, & Schriescheim, 1982). New directions for theory and research have been suggested as previous approaches have been found lacking or empirically unsupported.

A good example of the changes that are occurring in the field of leadership is in the methodologies that are used. The dominant approach employing questionnaire measures is being increasingly criticized. The use of alternative observational measures has been specifically proposed (Luthans, 1979; Luthans & Davis, in press) and is currently undergoing development by Luthans and his colleagues (Luthans & Lockwood, 1982; Luthans, Lockwood & Conti, 1981) and a few others (e.g., see: Bussom, Larson & Vicars, 1982). The singular theoretical perspective of viewing leadership as a causal determinant of subordinate performance and satisfaction has also been supplemented with efforts to determine the impact of subordinate behaviors on the behavior of the leader (Greene, 1974; Davis & Luthans, 1979). Contingency approaches which explore leadership in situational contexts have been developed (Bass and Valenzi, 1974; Fiedler, 1967) and more recently leadership research and theory has explored information-processing and cognitive style (Wynne and Husaker, 1975); behavioral decision making (Jago and Vroom, 1975); vertical dyad linkages and roles (Graen and Cashman, 1975); and social learning (Davis & Luthans, 1979; Luthans, 1979; Davis & Luthans, 1980; Luthans, 1981).

The social learning approach views the leader, the environment, and the leader's behavior as interacting variables rather than the traditional view that leadership somehow stands alone or makes a unilateral input into subordinates' performance. In addition to the interactive notion, the social learning approach also emphasizes the importance that reinforcing contingencies have on leader and subordinate behavior. In particular, a social learning perspective would say that organizational rewards such as salary and promotion would have an important impact on leader behavior (and vice versa, i.e., leader behavior would have an important impact on organizational rewards). This interactive relationship between leader behavior and organizational rewards has been largely ignored in the study of leadership. Although the impact that organizational rewards has on employee performance and satisfaction has received considerable attention over the years and the role of leaders in administering rewards has recently been emphasized (in path goal theories such as House, 1971) the interactive relationship between leader behavior and organizational rewards has not.

The present study was designed to analyze this relationship. Specifically, this study attempts to determine whether organizational rewards such as salary progression and promotion are related to particular leadership behaviors. Do organizations reward particular kinds of leader behaviors, and if so, which behaviors are being rewarded? If such a relationship between leader behaviors and rewards exists, our understanding of leadership may be enhanced. For example, identifying which leadership behaviors seem to be rewarded may improve our ability to induce changes in leader behavior and/or eventually organizational outcomes. Further, it may be the case that organizational reward systems influence the nature of leaders themselves and other environmental contingencies. Organizational reward systems may, for example, affect a leader's confidence and the perceived legitimacy as well as other subordinate perceptions and expectations. In other words, from a

social learning perspective, organizational rewards which are manipuable can affect leaders (e.g., their confidence in themselves), subordinates (e.g., their expectations and reactions to the leader), and the leader's behavior (e.g., accelerate or decelerate certain leader behaviors that are linked to effective performance outcomes). This study represents a first step in understanding these questions by simply examining if there is a relationship between organizational rewards and certain leader behaviors in one organizational setting.

Method

Subjects

One of the organizations used in an ongoing larger study provided subjects for the present investigation. Managers from the president down to first-line supervisors from a fairly large financial institution served as target leaders (N = 52). In other words, managers who had subordinates directly reporting to them were arbitrarily defined as leaders in this study. Usable data were generated for 49 of these leaders with attrition due to missing values for the three others. The target leaders used as subjects typically had been with this financial organization 6-10 years and in the present positions 1-5 years. Almost all of them fell in the 26-55 age range and a great majority had a college education.

The Observational Measurement Instrument and Procedure

The developing Leadership Observation System or simply LOS instrument used in this study is described in detail elsewhere (Luthans & Lockwood, 1982). The LOS contains 12 leader behavior categories as follows: (1) planning/coordinating, (2) staffing, (3) training/developing, (4) decision-making/problem solving, (5) processing paperwork, (6) exchanging routine information, (7) monitoring/controlling performance, (8) motivating/reinforcing, (9) disciplining/punishing, (10) interac-

ting with outsiders, (11) managing conflict, and (12) socializing/politicking. Each of these categories is defined in terms of observable behaviors. For example, monitoring/controlling performance is described behaviorally for the observer as: (a) inspecting work, (b) walking around and checking things out, touring, (c) monitoring performance data (e.g., looking over computer printouts, production or financial reports) and (d) doing preventative maintenance. The format of the LOS is that the behavioral categories are along the left hand side and eight random times along the top. A comprehensive reliability assessment of the LOS indicated quite high interrater agreement (93.5%) using this instrument (Luthans, Lockwood & Conti, 1981) and preliminary analysis of its construct validity is also quite promising (Luthans & Lockwood, 1982).

The procedure was to first give an extensive training workshop to selected participant observers (mostly secretaries and key subordinates of the target leaders in the study). This training stressed potential observational errors (following Thornton & Zorich, 1980) and how to overcome them and going over in detail the LOS instrument giving attention and analysis to the 12 behavioral categories. Role playing skits were used in this training to demonstrate and critique.

These trained participant observers then filled out the LOS instrument 80 times on each target leader over a two-week period of time (a random 10-minute period of each working hour over two weeks). This represents a total of almost 4000 possible observation periods (80 observations X 49 target leaders). The actual number was slightly less because the target manager was not always available to be observed.

Measures of Organizational Rewards

Three measures of organizational rewards were used in the study: (1) a salary progression index (SPI); (2) a measure of whether a manager's salary was in the top, middle or lowest one-third of the pay scale at his/her level in the organization

(PAY3RD); (3) and a promotion index (PI). The salary progression index was computed by dividing PAY3RD by the number of years the manager had held his/her current position. As such, this measure was used to represent the rapidity of salary progression. The larger the SPI score, the faster the salary advancement. The PAY3RD variable was scored with 3 equal to the top one-third of the pay scale, a 2 for the middle third, and a 1 equal to the bottom one-third. The promotion index was designed so that higher scores indicate more recent promotion to a higher level within the organization. Specifically, the performance index was calculated as follows:

$$PI = 5 - [(\text{Position Tenure}/\text{Organization Tenure}) \times \text{Level})]$$

Level 1 represesnting the highest level and level 5 the lowest level; organization and position tenure each was coded with 1 indicating the shortest tenure and 5 the longest tenure.

Statistical Method of Analysis Used

Since both the measures of organizational rewards and leadership behavior are multivariate, a canonical correlation was deemed to be the most appropriate way to analyze the data. Canonical correlation analysis is a method which enables one to examine relationships between sets of multiple criterion and multiple predictor variables (Hair, Anderson, Tatham and Grablowski, 1979). This method develops independent canonical functions that maximize the correlation between linear composites of sets of criterion and predictor variables. In the present study the three measures of organizational rewards were considered the criterion variables and the twelve leadership behavior categories were used as predictor variables. This designation reflects the research question of whether organizational rewards received by managers can be predicted by leader behaviors. However, it must be remembered that as in any correlational study, causal relationships are not directly

revealed by this statistical analysis.

Results

The results of the canonical correlational analysis are shown in Table 1. As shown, there is one moderately significant ($p < .07$) canonical root that was extracted with a canonical correlation ($R = .70$. The other two roots do not approach significance and are therefore *not* interpreted. The canonical loadings are analogous to factor loadings in factor analysis and can be used to assess the relative contribution of each variable to the extracted canonical function. All three criterion variables have high negative loadings (-.63 for PAY3RD -.88 for SPI, and -.78 for PI.) At the same time, the leader behavior predictor variables of "Exchanging Routine Information" and "Socializing/Politicking" have high positive loadings (.55 and .66 respectively). Thus, these findings show an inverse relationship between the two leader behavior predictor variables and the three measures of organizational rewards. In other words, high frequencies of the leader behaviors of "Exchanging Routine Information" and "Socializing/Politicking" are associated with low degrees of organizational rewards related to salary and promotion.

Insert Table 1 About Here

Further Analysis of the Relationship Found

Since the significance test of the canonical correlation ($R = .70$) indicates only a moderately significant relationship between the two sets of variables ($p < .07$), the magnitude of the relationship warrants further examination. A redundancy index has been proposed as a measure of the strength of this relationship (Alpert and Peterson, 1972; Stewart and Love, 1968). Whereas the squared canonical correlations provide an estimate of the shared variance between the canonical variates, the redundancy index represents the average squared correlation coefficients between the

total predictor set and each variable in the criterion set. Therefore, the redundancy index provides a summary measure of the ability of the predictor variable set to explain variation in the criterion variables taken one at a time. The results of the redundancy analysis are presented in Table 2.

Insert Table 2 About Here

As the table indicates, 49% of the variance between the two sets of variables is shared variance. Using the redundancy index as a measure of the magnitude of the relationship, it is found that 29% of the variance in the dependent variables has been explained by the canonical variate for the predictor set. By the same token, 6% of the variance in the independent variables has been explained by the canonical variate for the criterion set.

Discussion

The results of this study indicate that a relationship between particular leader behaviors and organizational rewards appears to exist. Specifically, the observed behaviors of exchanging routine information and socializing/politicking are inversely related to salary level, a salary progression index, and a promotion index. Although this relationship yields only a moderately significant result ($p < .07$), the amount of variance in the criterion variables explained by the predictor set of leadership behaviors provides additional evidence of the meaningfulness of the results obtained. While the measure of the proportion explained between the two sets of variables is relatively high ($R^2 = .49$), even the more conservative redundancy measure indicates a level of explained variance which is commonly reported in behavioral science literature (redundancy index = .29). At least as a first step, this study suggests that further investigation of the relationship between leader behaviors and organizational rewards is clearly warranted. Also, the lower redun-

dancy index measure for the predictor set (.06) confirms the appropriateness of the approach taken here, namely that leadership behaviors can more effectively predict various degrees of salary and promotion attainment than can salary and promotion attainment predict leadership behaviors.

Although a meaningful relationship appears to exist between leadership behaviors and organizational rewards, the precise interpretation of the nature of this relationship is more difficult. It comes as no surprise to discover that exchanging routine information and socializing/politicking are important variables in the present study. For example, Bass and Valenzi (1974) have previously identified informational access and power distribution as important determinants of leadership style. What is unexpected is the direction of that relationship. The present findings suggest that what trained participant observers measured as highly frequent leader behaviors of exchanging routine information and socializing/politicking are associated with lower degrees of salary and promotion attainment. This finding is surprising given the normative importance attributed to information generation and processing in the literature (e.g., see: Shapira and Dunbar, 1980), and the current emphasis given to the importance of organizational politics (e.g., see: Perrow, 1970; Pfeffer, 1977).

Although the direction of the relationship is not readily understood in the light of current literature on leadership, one can speculate about possible explanations. It is possible, of course, that the results reflect the uniqueness of the organization from which the data was collected. For example, those who make personnel decisions on promotion and salary in this organization may hold a negative view toward these two types of behaviors. Another possibility is that these behaviors may be deemed to be important, but those who exhibit them are simply not being rewarded. To investigate these possibilities, further studies should include leaders in a variety of organizational settings.

Another possible explanation of why the results differ from what the literature would dictate may be a function of the measures used to obtain the behavioral data. As the introductory comments indicated, questionnaire measures have almost been exclusively used in researching organizational behavior. There is some evidence that indicates how subordinates describe leaders' behaviors on questionnaires may be quite different from how leaders are observed to behave in their natural setting (Luthans & Lockwood, 1982). Even in this study an attempt was made to analyze the relationship between leader behaviors as measured by the LBDQ-XII (Stogdill, 1963) and the three criterion variables (organizational rewards). The results indicated one moderately significant ($p < .02$) canonical variate, but the redundancy analysis indicated that only 4% of the variation in the criterion variables was explained by the canonical variate for the predictor set. The same is true of the research which indicates the importance of information processing and organizational politics--questionnaires, not direct observations in situ, are used to gather the data (e.g., see: Patchen, 1974). In other words, data gathered by questionnaires may lead to different conclusions than data gathered by direct observations in situ. This, of course, does not say that questionnaire gathered data are wrong and data gathered by observations are right. Obviously, a case could be made for the limitations of the observational measures used in this study. By measuring only the frequency of behaviors and not necessarily the significance of the behaviors for the organization or the qualitative nature of the behaviors, important dimensions of leader behavior may be ignored. It is possible, for example, that instead of reflecting the importance of exchanging routine information in an information processing sense or socializing/politicking, in a pragmatic power sense, the frequency count of these behaviors may instead reflect lesser control of the leader's time or shorter work cycles. Less effective time management or shorter work cycles may help explain the fact that these leaders did not fare as well with

the organizational rewards as their counterparts who did not exhibit these behaviors as often. This line of discussion is, of course, merely speculative and further research would be needed to clarify the exact nature of the relationship discovered.

The important contribution of this study is not the particular relationship discovered, but rather the demonstration that a relationship between leader behaviors and organizational rewards does indeed exist. Further research is needed to more clearly identify which leadership behaviors are rewarded and whether different behaviors are rewarded at different levels, in different functional areas, or in different types of organizations. The traditional approaches which attempt to explain leader behavior through emergent processes can thus be expanded to include the impact of organizational reward systems on leader's behaviors. From a social learning perspective in general and a reinforcement perspective in particular, the relationship may help explain why leaders choose the behaviors they exhibit. In addition, the relationship may help further our understanding of the selection process and enable leadership development programs to more effectively introduce change in the behaviors of leaders.

The use of canonical correlation analysis would apepar to be a useful statistical/analytical tool for further investigating the relationship between leader behaviors and organizational rewards. As demonstrated in the present study, this tool enables an analysis to be made of the shared variance of two sets of variables. Especially from a social learning perspective, leadership is treated as multidimensional. Unless a single effective measure of organizational rewards is constructed, the multivariate approach used in the present study appears appropriate, although a variety of other measures reflecting organizational rewards needs to also be developed.

References

Alpert, M.I., & Peterson, R.A. On the interpretation of canonical analysis. Journal of Marketing Research, 1972, 9, 67-70.

Bass, B.M., & Valenzi, E.R. Contingent aspects of effective management styles. In J.G. Hunt and L.L. Larson (Eds.), Contingency Approaches to Leadership. Carbondale, Ill.: Southern Illinois University Press, 1974.

Bass, B.M. Stogdill's handbook of leadership. New York: Free Press, 1981.

Bussom, R.S., Larson, L.L., & Vicars, W.M. Unstructured, nonparticipant observation and the study of leader's interpersonal contacts. In J.G. Hunt, U. Sekaran, C.A. Schriesheim, (Eds.), Leadership: Beyond establishment views. Carbondale Ill.: Southern Illinois University Press, 1982, 31-49.

Davis, T.R.V., & Luthans, F. A social learning approach to organizational behavior. Academy of Management Review, 1980, 5, 281-290.

Davis, T.R.V., & Luthans, F. Leadership reexamined: A behavioral approach. Academy of Management Review, 1979, 4, 237-248.

Fiedler, F.E. A theory of leadership effectiveness. New York, McGraw-Hill, 1967.

Fleishman, E.A. Twenty years of consideration and structure. In E.A. Fleishman, & J.G. Hunt (Eds.), Current developments in the study of leadership. Carbondale, Ill.: Southern Illinois University Press, 1973.

Graen, G., & Cashman, J.F. A role-making model of leadership in formal organizations: A developmental approach. In J.G. Hunt, & L.L. Larson (Eds.), Leadership frontiers. Carbondale, Ill.: Southern Illinois University Press, 1975.

Greene, C. The path-goal theory of leadership: A replication and an analysis of causality. Paper presented at the 34th Annual Meeting, Academy of Management, Seatle, Washington, 1974.

Hair, J.F., Anderson, R.E., Tatham, R.L., & Grablowsky, B.J. Multivariate data analysis. Tulsa, Oklahoma: Petroleum Publishing Company, 1979.

House, R.J. A path-goal theory of leader effectiveness. Administrative Science Quarterly, 1971, 16, 321-338.

Hunt, J.G., & Larson, L.L. (Eds.) Crosscurrents in leadership. Carbondale, Ill.: Southern Illinois University Press, 1979.

Hunt, J.G., Sekaran, U., & Schriesheim, C.A. (Eds.) Leadership: Beyond establishment views. Carbondale, Ill.: Southern Illinois University Press, 1982.

Jago, A.G., & Vroom, V.H. Perceptions of leadership style: Superior and subordinate descriptions of decision making behavior. In J.G. Hunt, & L.L. Larson (Eds.), Leadership frontiers. Carbondale, Ill.: Southern Illinois University Press, 1975.

Luthans, F. Leadership: A proposal for a social learning theory base and observational and functional analysis techniques to measure leader behavior. In J.G. Hunt, & L.L. Larson (Eds.), Crosscurrents in leadership. Carbondale, Ill.: Southern Illinois University Press, 1979.

Luthans, F. Organizational behavior. New York: McGraw-Hill, 1981.

Luthans, F., & Davis, T.R.V. An idiographic approach to organizational behavior research: The use of single case experimental designs and direct measures. Academy of Management Review, (in press).

Luthans, F., & Lockwood, D.L. A validity analysis of an observation system for measuring leader behavior (Working Paper, Department of Management). University of Nebraska-Lincoln, January, 1982.

Luthans, F., Lockwood, D.L., & Conti, M. A reliability assessment of participant observational measures of leader behavior in natural settings (ONR Tech. Rep. 3). University of Nebraska-Lincoln, July, 1981.

Patchen, M. The locus and basis of influence on organizational decisions. Organizational Behavior and Human Performance, 1974, 11, 195-221.

Perrow, C. Departmental power and perspectives in industrial firms. In M.N. Zald (Ed.), Power in organizations. Nashville, Tenn.: Vanderbilt University, 1970.

Pfeffer, J. Power and resource allocation in organizations. In B.M. Staw, & G.R. Salancik (Eds.), New directions in organizational behavior. Chicago: St. Clair Press, 1977.

Shapira, Z., & Dunbar, R.L.M. Testing Mintzberg's role classification using an in-basket simulation. Journal of Applied Psychology, 1980, 65, 87-95.

Stewart, D., & Love, W. A general canonical correlation index. Psychological Bulletin, 1968, 70, 160-163.

Stogdill, R.M. Manual for the leader behavior description questionnaire - Form XII, Columbus, Ohio: Bureau of Business Research, Ohio State University, 1963.

Thornton, G.E., & Zorich, S. Training to improve observer accuracy. Journal of Applied Psychology, 1980, 65, 351-354.

Wynne, B.E., & Hunsaker, P.L. A human information-processing approach to the study of leadership. In J.G. Hunt, & L.L. Larson (Eds.), Leadership frontiers. Carbondale, Ill.: Southern Illinois University Press, 1965.

Table 1

Canonical Analysis Results

Variables	Function I				Function II				Function III			
	W	L	L^2	% L^2	W	L	L^2	% L^2	W	L	L^2	% L^2
Dependent set												
Paythird (PAY3RD)	-.13	-.63	.40	.22	-.47	-.64	.41	.43	-1.43	-.43	.18	.75
Salary Progression Index (SPI)	-.58	-.88	.77	.43	-.41	-.42	.18	.19	1.46	.22	.05	.20
Promotion Index (PI)	-.53	-.78	.61	.34	.85	.61	.37	.39	-.49	-.13	.02	.08
			1.78				.96				.25	
Independent Set												
Decision-Making/Problem Solving	.02	.36	.13	.09	.09	.42	.18	.12	-.59	-.50	.25	.20
Disciplining/Punishing	-.23	.15	.02	.01	-.31	.03	.00	.00	-.46	-.06	.00	.00
Exchanging Routine Information	.39	.55	.30	.21	-.07	.21	.04	.03	-.10	-.53	.28	.22
Interacting With Outsiders	-.38	.09	.01	.01	-.28	-.02	.00	.00	-.68	-.66	.44	.35
Managing Conflict	.11	.11	.01	.01	.07	.24	.06	.04	.08	-.16	.03	.02
Monitoring/Controlling Performance	-.54	-.19	.04	.03	.70	.67	.45	.31	.00	-.22	.05	.04
Motivating/Reinforcing	.04	.11	.01	.01	-.34	.32	.10	.07	.34	-.12	.01	.01
Planning/Coordinating	.40	.41	.17	.12	.71	.65	.42	.29	.04	-.05	.00	.00
Processing Paperwork	.31	.43	.18	.12	.40	.22	.05	.03	-.16	-.35	.12	.09
Socializing/Politicking	.41	.66	.44	.30	-.40	-.11	.01	.01	.26	-.15	.02	.02
Staffing	.41	.37	.41	.10	.14	.01	.00	.00	.65	.19	.03	.02
Training/Developing	-.16	-.04	.00	.00	.04	.39	.15	.10	.45	.20	.04	.03
			1.45				1.46				1.27	
Canonical R		.70				.57				.40		
Canonical Root (R^2)		.49				.49				.16		
F Statistic		1.4612				1.0506				.6892		
Degrees Freedom (num/denom)		36/101.18				22/70				10/36		
Level of Significance		.07				.42				.73		

Note: The numbers in the W column are canonical weights; the numbers in the L column are the canonical loadings; the loadings are squared and reported in the L^2 columns; and the percentage sums of loadings are shown in the % L^2 column.

Table 2

Redundancy Analysis Results

Canonical Function	Root (R^2)	Variance Extracted	Proportion Of Total Redundancy	Redundancy
		Criterion Set		
1	.49	.59	.29	.71
2	.33	.32	.11	.27
3	.16	.08	.01	.02
		.41		
		Predictor Set		
1	.49	.12	.06	.50
2	.33	.12	.04	.33
3	.16	.11	.02	.17
		.12		

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LIST 4
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Navy Personnel R&D Center
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Naval Personnel R&D Center
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Dr. Robert Penn (1 copy)
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P4-5/A9
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LIST 5
BUMED

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Program Manager for Human
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Naval Medical R&D Command
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Monterey, CA 93940

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ATTN: Professor John Senger
Operations Research and
Administrative Science
Monterey, CA 93940

Superintendent
Naval Postgraduate School
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Naval Postgraduate School
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Naval Postgraduate School
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U.S. Naval Academy
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Annapolis, MD 21402

P4-5/A13
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LIST 7
HRM

List 7 (Continued)

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Officer in Charge
Human Resource Management Detachment
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Groton, CT 06340

Officer in Charge
Human Resource Management Division
Naval Air Station
Mayport, FL 32228

Commanding Officer
Human Resource Management Center
Pearl Harbor, HI 96860

Commander in Chief
Human Resource Management Division
U.S. Pacific Fleet
Pearl Harbor, HI 96860

Officer in Charge
Human Resource Management Detachment
Naval Base
Charleston, SC 29408

Commanding Officer
Human Resource Management School
Naval Air Station Memphis
Millington, TN 38054

Human Resource Management School
Naval Air Station Memphis (96)
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Commanding Officer
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Commanding Officer
Human Resource Management Center
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Norfolk, VA 23511

Commander in Chief
Human Resource Management Division
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Officer in Charge
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P4-5/A16
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LIST 8
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and Evaluation Group
Orlando, FL 32813

Commanding Officer
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Chief of Naval Education
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Commanding Officer
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Commanding Officer
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Command and Staff College
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P4-5/A27
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LIST 13
AIR FORCE

LIST 12
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